



MACHAKOS UNIVERSITY

University Examination 2018/2019

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

FIRST YEAR SECOND SEMESTER EXAMINATION FOR

BACHELOR OF SCIENCE (ELECTRICAL AND ELECTRONICS ENGINEERING)

BACHELOR OF SCIENCE (CIVIL ENGINEERING)

ECU 108: INTRODUCTION TO THE ENGINEERING PROFESSION

DATE: 21/5/2019

TIME: 8.30-10.30 AM

INSTRUCTIONS

Answer Question ONE and any other TWO Questions.

Define all symbols used.

Marks will be awarded for procedure, methodologies used and not necessarily on the final answer.

QUESTION ONE (30 MARKS)

- a)
 - i State the focus of Civil Engineering and what it entails. (6 marks)
 - ii Give the scope of Power Engineering (4 marks)
- b)
 - i Outline the steps followed during the Preliminary Design Stage of Building Works. (3 marks)
 - ii Explain the *Representation Role* of a Manager. (3 marks)
 - iii Write a one paragraph essay on Standards of Achievement in the practice of Engineering. (4 marks)
- c)
 - i Pupilage is an importance stage in the development of a professional engineer. Explain why. (3 marks)
 - ii Outline the two-digit *ISIC* Classification. (3 marks)
 - iii Explain what led to the rapid growth of Mechanical Engineering during the industrial revolution and how. (4 marks)

QUESTION TWO (20 MARKS)

- a) State what the *Building Code* is and explain why it is necessary. (6 marks)
- b)
 - i List eight (8) Mechanical Engineering services. (8 marks)
 - ii Outline the key areas of specialization for Electrical Engineers and state their application. (6 marks)

QUESTION THREE (20 MARKS)

- a) In an Industrial Project, the determination of the demand for its products is vital.
 - i. Explain why this is so. (5 marks)
 - ii. Describe how one would estimate the respective market size. (5 marks)
- b) Demonstrate thorough understanding of:-
 - i. Capital Structure for an Industrial Project. (5 marks)
 - ii. Working Capital. (5 marks)

QUESTION FOUR (20 MARKS)

- a) Explain the terms '*Design Consulting Team*' in detail and state its role in building projects. (10 marks)
- b) Consider a pre-feasibility study in project engineering.
 - i. Explain its role. (5 marks)
 - ii. Outline the questions it answers. (5 marks)

QUESTION FIVE (20 MARKS)

- a) During the establishment of an industrial project, the investor incurs preliminary and pre-operational expenses. List these costs and indicate why they are essential. (10 marks)
- b) *Site Preparation* and *Building Construction* are necessary Civil Works in the implementation of an Industrial Project. Describe what each entails. (10 marks)